Notice of Allowability	Application No.	Applicant(s)	
	09/752,781	SUMIDA ET AL.	
	Examiner	Art Unit	
	Mark Ruthkosky	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *7/27/2004*.

2. ☒ The allowed claim(s) is/are *3 and 4*.

3. ☒ The drawings filed on *03 January 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Mark Ruthkosky 8/18/04
Mark Ruthkosky
Primary Patent Examiner
Art Unit: 1745

DETAILED ACTION

Response to Amendment

Claims 3-4 are pending in the application. The applicant has canceled claims 11-12 in the amendment of 7/27/2004.

Examiner Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. The title of the invention has been amended to be clearly indicative of the invention to which the allowed claims are directed.

The application has been amended as follows:

Please change the title to: A Process of Producing Manganese Dioxide for a Lithium Primary Battery.

Specification

The objection to the disclosure with regard to new matter not supported by the original disclosure has been overcome by the applicant's amendment of 7/27/2004 canceling the matter.

Claim Rejections - 35 USC § 102

The rejection of claims 3 and 11 under 35 U.S.C. 102(e) as being anticipated by Nagayama et al. (WO00/06496.) has been overcome by the applicant's amendment.

The rejection of claim 11 under 35 U.S.C. 102(b) as being anticipated by Capparella et al. (US 5,698,176) has been overcome by the applicant's amendment canceling the claim.

Claim Rejections - 35 USC § 103

The rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (WO00/06496) in view of EP 373,791 has been overcome by the applicant's amendment.

The rejection of claim 12 under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (WO00/06496) in view of EP 373,791 has been overcome by the applicant's amendment canceling the claim.

The rejection of claim 12 under 35 U.S.C. 103(a) as being unpatentable over Capparella et al. (US 5,698,176) in view of EP 373,791 has been overcome by the applicant's amendment canceling the claim.

Allowable Subject Matter

Claims 3-4 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a process for producing manganese dioxide with a sodium content of 0.05 to 0.2% by weight for lithium primary batteries. The process

consists essentially of the steps of neutralizing electrolytic manganese dioxide with an aqueous solution of sodium hydroxide such that the solution contains 2.0-5.0 g of NaOH per kilogram of manganese dioxide and then heating the neutralized manganese dioxide at a temperature and for a time sufficient to form β-manganese dioxide or γ- β - manganese dioxide having a sodium content of 0.05 to 0.2% by weight.

The prior art does not teach a process of forming β-manganese dioxide or γ- β - manganese dioxide a having a sodium content of 0.05 to 0.2% by weight by the claimed process steps. The most pertinent prior art has been presented.

Nagayama et al. (WO00/06496) teaches a process where 10 kilograms of electrolytic manganese dioxide are neutralized with an aqueous solution of 35 grams of sodium hydroxide in water. The product is then heated at 50 °C for 30 minutes. The process does not teach heating the neutralized manganese dioxide at a temperature and for a time sufficient to form β-manganese dioxide or γ- β -manganese dioxide having a sodium content of 0.05 to 0.2% by weight. The process does not form β-manganese dioxide or γ- β -manganese dioxide as a product.

In addition, Capparella et al. (US 5,698,176) teaches a manganese oxide compound with a low-sodium content for lithium primary cells. The starting material is electrolytic manganese dioxide, however the step of neutralizing the electrolytic manganese dioxide with an aqueous solution of sodium hydroxide does not form β-manganese dioxide or γ- β -manganese dioxide with a sodium content of 0.05 to 0.2% by weight. Other neutralizing bases, not based on sodium, are taught which give lower concentrations of sodium in manganese dioxide; however, these products are not based on the claimed process.

With regard to claim 4, EP 373,791 teaches a lithium primary cell having a phosphorous content of 0.05 to 2.0% by weight based on manganese dioxide (see claims 1-3.) The manganese dioxide material used in a battery or cell with a phosphorous content of 0.05 to 2.0% has a high discharge voltage and long discharge time and that discharge characteristics in a lithium primary cell are degraded if the phosphorous content is higher than 2.0%. The manganese dioxide used in the cell is not based on the claimed process and does not form β-manganese dioxide or γ- β -manganese dioxide having a sodium content of 0.05 to 0.2% by weight.

As the prior art does not teach the process, as claimed, to form β-manganese dioxide or γ- β -manganese dioxide having a sodium content of 0.05 to 0.2% by weight, the claims are allowed. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Ruthkosky
Primary Patent Examiner
Art Unit 1745

8/18/04